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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/088,904	07/19/2002	Yoshihiro Nakai	220975US0PCT	8948

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ALEXANDRIA, VA 22314

EXAMINER

ASINOVSKY, OLGA

ART UNIT	PAPER NUMBER
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1711

DATE MAILED: 10/03/2003

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

10/088,904

Applicant(s)

NAKAI ET AL.

Examiner

Olga Asinovsky

Art Unit

1711

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 19 July 2002.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-21 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-21 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
- Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- 11) ☐ The proposed drawing correction filed on _____ is: a) ☐ approved b) ☐ disapproved by the Examiner.
- If approved, corrected drawings are required in reply to this Office action.
- 12) ☐ The oath or declaration is objected to by the Examiner.

Priority under 35 U.S.C. §§ 119 and 120

- 13) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some * c) ☐ None of:
- ☐ Certified copies of the priority documents have been received.
 - ☐ Certified copies of the priority documents have been received in Application No. _____.
 - ☒ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- * See the attached detailed Office action for a list of the certified copies not received.
- 14) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application).
- a) ☐ The translation of the foreign language provisional application has been received.
- 15) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121.

Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☒ Information Disclosure Statement(s) (PTO-1449) Paper No(s) 07/19/02.
- 4) ☐ Interview Summary (PTO-413) Paper No(s). _____.
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other: _____.

DETAILED ACTION

Claim Rejections - 35 USC § 102

1. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

2. Claims 1, 4-12 and 14 are rejected under 35 U.S.C. 102(b) as being anticipated by Gallagher U.S. Patent 3,969,431.

The claimed invention is a graft copolymer (G) which is prepared by emulsion graft polymerization of a rubber polymer comprising 0 – 50wt.% of a butadiene unit and 50-100 wt.% of a (meth)acrylate unit and at least one monomer selected from aromatic alkenyl compound, methacrylate, acrylate and vinyl cyanide compound, said graft copolymer containing 0.5-2.0% by weight of an emulsifier residue.

Gallagher discloses a suspension-emulsion interpolymer (SEI) particles in which the polymer of suspension polymerized vinyl monomer such as polyvinyl chloride, surrounds and/or is intimately dispersed throughout the mass of the essentially crosslinked elastomer particles, column 1, lines 48-53. The crosslinked elastomer particles are prepared by graft emulsion polymerization technique in the presence of a surfactant=emulsifier. The crosslinked elastomeric particles are a mixture of butyl acrylate and 2-ethylhexylacrylate,

column 5, lines 28-33, for the present claim 1. The present claim 1 discloses a butadiene rubber that could be present in zero amount. The acrylic elastomer particles should be crosslinked, column 5, line 31. The graft polymerization is produced in the presence of a surfactant=emulsifier, column 4, lines 21-68. The selected surfactant such as a reactive surfactant have effect on to control the particle size of the obtained latex particles. The large latex particles in the range particle size of about 0.1 to 0.8 microns are overlapping the particles diameter of 200 to 500 nanomicros in the present claim 8. The surfactant such as a sulfosuccinate is readable in the present claims 4-5. The amount of at least 0.5% by weight of the reactive emulsifier would be inherent in the graft polymerization process in Gallagher's invention. The vinyl chloride monomer is polymerizing by a suspension polymerization in the presence of the aqueous emulsion of acrylic elastomer particles, column 5, lines 59-62. The obtained SEI particles have the desired particles size in the range of about 10 to 200 microns, these particles size is controlled by filtration, column 8, lines 47-49. The ordinary polyvinyl chloride can be blended with the obtained SEI particles, column 8, lines 62-68, for the present claim 14.

3. Claims 1-3 and 6-21 are rejected under 35 U.S.C. 102(b) as being anticipated by Hongo et al U.S. Patent 5,346,952.

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In addition to the issue of the present invention that was discussed in the paragraph 2 above, a butadiene rubber unit in the graft copolymer is present in the present claim 2.

Hongo discloses a graft copolymer (C) prepared by any emulsion polymerization, column 4, line 42-43. The graft copolymer (C) can be prepared by the graft polymerization of n-butyl acrylate and methacrylic acid or (meth)acrylic acid ester onto a polybutadiene latex having a solid content of 33% and an average particle diameter of 0.08 micron, column 6, lines 22-27 and column 11, lines 15-19, for the present claims 1-3 and 10. A potassium oleate emulsifier is readable in the present claims 1 and 10. The obtained graft copolymer latex was coagulated, washed, filtered and dried, column 6, lines 45-46, for the present claims 1 and 10. The obtained agglomerated rubber latex has an average particle diameter of 280 nm, column 6, line 62, for the present claims. The graft copolymer © can be used as an impact modifier for polystyrene resin and polyphenylene ether, column 2, line 35 and column 3, line 20, for the present claim 14. A halogen type flame retardant and filler can be incorporated into a composition for producing articles, column 5, lines 11-16, for the present claims 16-17, 19-21.

Claim Rejections - 35 USC § 103

4. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

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(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

5. Claims 4-5 are rejected under 35 U.S.C. 103(a) as being unpatentable over Hongo et al U.S. Patent 5,346,952 as applied to claims 1-3 and 6-21 above, and further in view of Uemae et al U.S. Patent 5,898,043.

The difference between the present claims 4-5 and Hongo is the requirement in the present claims 4-5 of a specified emulsifier having two or more functional groups in a molecule such as alkenylsuccinic acid or salt thereof.

Uemae discloses a reactive emulsifier such as alkenylsuccinic acid salt type, column 11, lines 55-56, for the emulsion polymerization, column 13, lines 8-10.

It would have been obvious to one of ordinary skill in the art to substitute the potassium oleate emulsifier in Hongo's invention with alkenylsuccinic acid salt type in Uemae invention because both emulsifiers have the same utility of using and the analogous performance, and, thereby, obtain the claimed requirement.

6. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure. The prior art is relevant to show the state of the art knowledge.

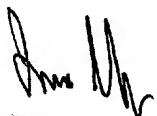
Any inquiry concerning this communication or earlier communications from the examiner should be directed to Olga Asinovsky whose telephone number is 703-308-0041. The examiner can normally be reached on 9:00 to 5:30 pm.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, James Seidleck can be reached on 703-308-2462. The fax phone number for the organization where this application or proceeding is assigned is (703) 872-9306.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is 703-308-0661.

Olga Asinovsky
Examiner
Art Unit 1711

O.A.
O.A.
September 25, 2003


James J. Seidleck
Supervisory Patent Examiner
Technology Center 1700